WHAT IS CLAIMED IS:

1. An isolated anti-prostate stem cell antigen (PSCA) antibody that internalizes upon binding to PSCA on a mammalian cell in vivo.

2. The antibody of claim 1 which is a monoclonal antibody.

3. The antibody of claim 1 which is an antibody fragment.

4. The antibody of claim 1 which is a chimeric or a humanized antibody.

5. The antibody of claim 2 which is produced by a hybridoma selected from the group of hybridomas deposited under American Type Culture Collection accession number PTA-717, PTA-718, PTA-719, PTA-720, PTA-880, PTA-2265, or PTA-2264, or which has the amino acid sequence of SEQ ID NO.10, SEQ ID NO.11, SEQ ID NO.12, or SEQ ID NO.13.

6. The antibody of claim 2, wherein the antibody competes for binding to the same epitope as the epitope bound by the monoclonal antibody produced by a hybridoma selected from the group of hybridomas deposited under the American Type Culture Collection accession number PTA-717, PTA-718, PTA-719, PTA-720, PTA-880, PTA-2265, PTA-2264.

7. The antibody of claim 2 which is conjugated to a growth inhibitory agent.

8. The antibody of claim 2 which is conjugated to a cytotoxic agent.

9. The antibody of claim 8 wherein the cytotoxic agent is selected from the group consisting of toxins, antibiotics, radioactive isotopes and nucleolytic enzymes.

10. The antibody of claim 9 wherein the cytotoxic agent is a toxin.

11. The antibody of claim 10, wherein the toxin is selected from the group consisting of maytansinoid or calicheamicin

12. The antibody of claim 11, wherein the toxin is a maytansinoid.

13. The antibody of claim 12, wherein the maytansinoid has the structure shown in FIG. 22.

14. The antibody of claim 2, wherein the mammalian cell is a cancer cell.

15. An anti-PSCA monoclonal antibody that inhibits the growth of PSCA-expressing cancer cells in vivo.

16. The antibody of claim 15, wherein the antibody internalizes upon binding to PSCA on the cancer cell.

17. The antibody of claim 16 which is a humanized or human antibody.

18. The antibody of claim 17 which is produced in bacteria.

19. The antibody of claim 15, which is a humanized form of an anti-PSCA antibody produced by a hybridoma selected from the group of hybridomas having ATCC accession number PTA-717, PTA-718, PTA-719, PTA-720, PTA-880, or PTA-2265.

20. The antibody of claim 15, wherein the cancer cells are from a cancer selected from the group consisting of prostate cancer, bladder cancer and lung cancer.

21. The antibody of claim 20, wherein the cancer is prostate cancer.

22. An isolated nucleic acid comprising a sequence that encodes a polypeptide having the amino acid sequence selected from the group consisting of SEQ ID NO.3, SEQ ID NO.4, SEQ ID NO.5, SEQ ID NO.6, SEQ ID NO.7, SEQ ID NO.8, SEQ ID NO.9, SEQ ID NO.10, SEQ ID NO.11, SEQ ID NO.12, or SEQ ID NO.13.

23. An expression vector comprising the nucleic acid of claim 22 operably linked to an expression regulatory sequence.

24. A cell that produces the antibody of claim 2.

25. The cell of claim 24, wherein the cell is selected from the group of hybridoma cells deposited under American Type Culture Collection accession number PTA-717, PTA-718, PTA-719, PTA-720, PTA-880, PTA-2264, or PTA-2265.

26. A host cell comprising the vector of claim 23.

27. The host cell of claim 26 which is a bacterial cell.

28. A method of producing the antibody of claim 2 comprising culturing the cell that produces the antibody of claim 2 and recovering the antibody from the cell culture.

29. A composition comprising the antibody of claim 2 or claim 15, and a carrier.

30. The composition of claim 29, wherein the antibody is conjugated to a cytotoxic agent.

31. The composition of claim 30, wherein the cytotoxic agent is a maytansinoid.

32. The composition of claim 31, wherein the antibody is a human or humanized antibody and the carrier is a pharmaceutical carrier.

33. The composition of claim 32, wherein the humanized antibody is a humanized form of an anti-PSCA antibody produced by a hybridoma selected from the group of hybridomas having ATCC accession number PTA-717, PTA-718, PTA-719, PTA-720, PTA-880, or PTA-2265.

34. A method of killing a PSCA-expressing cancer cell, comprising contacting the cancer cell with the antibody of claim 1, thereby killing the cancer cell.

35. The method of claim 34, wherein the cancer cell is selected from the group consisting of prostate cancer, bladder cancer and lung cancer cell.

36. The method of claim 35, wherein the cancer cell is a prostate cancer cell.

37. The method of claim 36, wherein the prostate cancer is androgen independent.

38 The method of claim 36, wherein the cancer cell is from metastatic prostate cancer.

39. The method of claim 34, wherein the antibody is an antibody fragment.

40. The method of claim 34, wherein the antibody is a humanized antibody.

41. The method of claim 40, wherein the antibody is conjugated to a cytotoxic agent.

42. The method of claim 41, wherein the cytotoxic agent is a toxin selected from the group consisting of maytansinoid or calicheamicin.

43. The method of claim 42, wherein the cytotoxic agent is a maytansinoid.

44. The method of claim 43, wherein the antibody is a humanized form of the antibody produced by a hybridoma selected from the group of hybridomas having ATCC accession number PTA-718, PTA-719, PTA-720, PTA-880, or PTA-2265.

45. The method of claim 41, wherein the cytotoxic agent is a radioactive isotope.

46. A method of alleviating a PSCA-expressing cancer in a mammal, comprising administering a therapeutically effective amount of the antibody of claim 15 to the mammal.

47. The method of claim 46, wherein the cancer is selected from the group consisting of prostate cancer, bladder cancer and lung cancer.

48. The method of claim 47, wherein the cancer is a prostate cancer.

49. The method of claim 48 wherein the prostate cancer is androgen independent or metastatic prostate cancer.

50. The method of claim 46, wherein the antibody is a humanized antibody.

51. The method of claim 50, wherein the antibody is conjugated to a cytotoxic agent.

52. The method of claim 51, wherein the cytotoxic agent is a maytansinoid.

53. The method of claim 52, wherein the maytansinoid has the structure shown in FIG. 22.

54. The method of claim 46, wherein the antibody is administered in conjunction with at least one chemotherapeutic agent.

55. The method of claim 54, wherein the chemotherapeutic agent is paclitaxel or derivatives thereof.

56. An article of manufacture comprising a container and a composition contained therein, wherein the composition comprises an antibody of ~~claim 2~~, and further comprising a package insert indicating that the composition can be used to treat prostate cancer.

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